

ology, anatomy, and symptomatology of the infection in various species of animals are discussed. The manner in which the symptoms vary in different animals makes this discussion necessary in order to come to satisfactory conclusions concerning the diagnosis and intelligently to control the epidemics.

A chapter is devoted to the consideration of the identity and individuality of surra, nagana, dourine, and mal de caderas. As in the case of the parasite, the authors have left the subject open, but they are strongly inclined to believe that these diseases are the same, in which case surra would be the only vernacular name allowable. They find nothing in the clinical study of these diseases to differentiate them, and the only real arguments in favor of their individuality are based upon morphologic differences in the parasites. These differences appear so slight that a positive classification could not be founded upon them.

The study of prophylaxis includes the consideration of quarantine laws intended to prevent the infection and reinfection of the country, as the case may be, and the methods for the control and eradication of the disease in territories in which it already has a foothold. In discussing this matter the writers have limited themselves almost entirely to the consideration of means adapted for destroying the hosts and supplemented by those suitable for combating the carrying agents. Prophylactic and curative serumtherapy have thus far failed to give successful results, but if recent reports from Africa are to be trusted preventive inoculation is not entirely without promise of success. All methods tried for the treatment of the disease have been without results, particular importance, or significance.

The Pathogenesis of the Crisis in Lobar Pneumonia.—TCHISTOWITCH, in the *Annales de l'Institut Pasteur*, 1904, May 25, No. 5, continues his work upon pneumococcic infection. He has performed a series of experiments to determine the principal factors involved in the production of the crisis in lobar pneumonia.

In former researches the author has already established that if animals are subjected to a pneumococcic infection of non-fatal severity a leukocytosis and a very energetic destruction of the pneumococci by the phagocytes take place, while, on the other hand, in fatal infections caused by virulent pneumococci the number of phagocytes in the blood diminishes, and phagocytosis is not apparent. Further work has convinced the author that the crisis is not due to bactericidal properties which have been developed in the body, as he has been able to obtain, even after the crisis, living and virulent pneumococci by puncture of the diseased lung. He has also been able to show that the blood of patients suffering with pneumonia during or even after the crisis does not possess bactericidal properties for the pneumococci procured from the same patient. Rejecting the findings of Isaëff, that the blood of a recovering pneumonia patient possesses active antitoxic properties, the author considers that phagocytosis is the principal factor in the process of recovery. He considers the crisis to be produced by the destruction in the lungs of the majority of the pneumococci by phagocytes. The phagocytosis assumes a more active character in these cases, he thinks, by the appearance in the blood of the stimulins. The

agglutinins, antitoxins, and the other substances of defence are considered to play only a secondary part and to aid in the defence of the organism against pneumococcic infections.

Histological Studies of Xanthoma.—Various theories have been advanced in regard to the nature of xanthoma. The tumor has been considered to be derived from atypical and irregular multiplication of sebaceous cells analogous to the carcinoma development of other glands. It has been considered to result from changes in muscle fibres, and has also been thought to be of endothelial origin. The histologic study of xanthoma by MCFARLAND and MCCONNELL (*Journal of Medical Research*, July, 1904, vol. xii., p. 69) has led them to believe the tumor to be of connective-tissue origin. They found the chief changes in the reticular layer of the cutis, which consisted of an invasion of its tissue by cells penetrating in an irregular manner, resembling the invasion of the alveolar tissue by carcinoma cells. These cells resemble exactly those of the sebaceous glands, and contain a large number of fat-droplets in their cytoplasm. The authors believe these xanthoma cells, as they have been called, to be formed by a very gradual conversion of connective tissue similar to the normal transformation of ordinary connective tissue into adipose tissue.

Amœbæ: Their Cultivation and Etiological Significance.—MUSGRAVE and CLEGG (*Report from Bureau of Government Laboratories, Biological Laboratory*, No. 18, 1904) in an interesting article described their method of cultivating amœbæ and the results of a series of animal experiments. A stock medium is prepared in the following manner: agar, 20.000; sodium chloride, 0.300 to 0.500; extract of beef, 0.300 to 0.500.

This is made of 1 per cent. alkaline to phenolphthalein. The medium is prepared in the same way as ordinary sugar, then poured into Petri dishes, and upon the surface is inoculated the material containing amœbæ. So far the amœbæ have only grown in the presence of bacteria. No pure cultures were ever obtained; and in order to procure successful cultivations the importance of this bacterial symbiosis must be taken into account. Usually, in cases of amœbic dysentery, or of "amœbiasis," as the authors have termed this disease, growths of at least one type of bacteria present in the intestines aid the multiplication of the amœbæ. The organisms show a decided selectiveness, however, and when transferred to a plate smeared with a mixed culture of bacteria may pick out a single type. Different growths of amœbæ select different bacteria. Thus, by the use of twelve different selected bacteriæ, growth was obtained in 30 per cent. of one series of cases, when the control inoculations made on the same medium without bacteria showed only 2 per cent. of positive results. Amœbæ multiply rapidly in from twenty-four to forty-eight hours at room temperature, moving over the surface of the plate. Separate amœbæ could be transferred from one plate to another, so that a single species could be cultivated and studied. In cultures the parasites about the margin of the growth are most actively motile, and frequently multiplication by fission is observed. In older cultures encysted forms are common.

The wide distribution of amœbæ has always been recognized, and the authors have succeeded in cultivating them, not only from the